E 14

```
PPPPPPPPPPPP        AAAAAAAAA     TTTTTTTTTTTTTTT     CCCCCCCCCCCC  HHH         HHH
PPPPPPPPPPPP        AAAAAAAAA     TTTTTTTTTTTTTTT     CCCCCCCCCCCC  HHH         HHH
PPPPPPPPPPPP        AAAAAAAAA     TTTTTTTTTTTTTTT     CCCCCCCCCCCC  HHH         HHH
PPP         PPP  AAA         AAA        TTT        CCC              HHH         HHH
PPP         PPP  AAA         AAA        TTT        CCC              HHH         HHH
PPP         PPP  AAA         AAA        TTT        CCC              HHH         HHH
PPP         PPP  AAA         AAA        TTT        CCC              HHH         HHH
PPP         PPP  AAA         AAA        TTT        CCC              HHH         HHH
PPP         PPP  AAA         AAA        TTT        CCC              HHH         HHH
PPPPPPPPPPPP     AAA         AAA        TTT        CCC              HHHHHHHHHHHHHHH
PPPPPPPPPPPP     AAA         AAA        TTT        CCC              HHHHHHHHHHHHHHH
PPPPPPPPPPPP     AAA         AAA        TTT        CCC              HHHHHHHHHHHHHHH
PPP              AAAAAAAAAAAAAAA        TTT        CCC              HHH         HHH
PPP              AAAAAAAAAAAAAAA        TTT        CCC              HHH         HHH
PPP              AAAAAAAAAAAAAAA        TTT        CCC              HHH         HHH
PPP              AAA         AAA        TTT        CCC              HHH         HHH
PPP              AAA         AAA        TTT        CCC              HHH         HHH
PPP              AAA         AAA        TTT        CCC              HHH         HHH
PPP              AAA         AAA        TTT           CCCCCCCCCCCC  HHH         HHH
PPP              AAA         AAA        TTT           CCCCCCCCCCCC  HHH         HHH
PPP              AAA         AAA        TTT           CCCCCCCCCCCC  HHH         HHH
```

```
                                                              I 10
**FILE**ID**PATIHD



PPPPPPPP      AAAAAA    TTTTTTTTTT    IIIIII    HH      HH  DDDDDDDD
PPPPPPPP      AAAAAA    TTTTTTTTTT    IIIIII    HH      HH  DDDDDDDD
PP      PP  AA      AA      TT          II      HH      HH  DD      DD
PP      PP  AA      AA      TT          II      HH      HH  DD      DD
PP      PP  AA      AA      TT          II      HH      HH  DD      DD
PP      PP  AA      AA      TT          II      HH      HH  DD      DD
PPPPPPPP    AA      AA      TT          II      HHHHHHHHHH  DD      DD
PPPPPPPP    AA      AA      TT          II      HHHHHHHHHH  DD      DD
PP          AAAAAAAAAA      TT          II      HH      HH  DD      DD
PP          AAAAAAAAAA      TT          II      HH      HH  DD      DD
PP          AA      AA      TT          II      HH      HH  DD      DD      ....
PP          AA      AA      TT          II      HH      HH  DD      DD      ....
PP          AA      AA      TT        IIIIII    HH      HH  DDDDDDDD        ....
PP          AA      AA      TT        IIIIII    HH      HH  DDDDDDDD        ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

```
L 0001  0 MODULE PATIHD (%IF %VARIANT EQL 1                                     ! ROUTINES TO HANDLE IMAGE HEADER AND SECTIO
  0002  0                %THEN
  0003  0                                              ADDRESSING_MODE (EXTERNAL = LONG_RELATIVE,
  0004  0                                                         NONEXTERNAL = LONG_RELATIVE),
  0005  0                %FI
  0006  0                IDENT = 'V04-000'
  0007  0                ) =
  0008  1 BEGIN
  0009  1
  0010  1 !
  0011  1 !****************************************************************************
  0012  1 !*                                                                          *
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  0030  1 !*                                                                          *
  0031  1 !*                                                                          *
  0032  1 !****************************************************************************
  0033  1
  0034  1 !++
  0035  1 ! FACILITY: PATCH
  0036  1 !
  0037  1 ! ABSTRACT: ROUTINES TO HANDLE IMAGE HEADER DATA AND CREATE AND MAP IMAGE SECTIONS.
  0038  1 !
  0039  1 ! ENVIRONMENT: PART OF IMAGE FILE PATCH UTILITY
  0040  1 !
  0041  1 ! AUTHOR: K.D. MORSE     , CREATION DATE: 11-OCT-77
  0042  1 !
  0043  1 ! MODIFIED BY:
  0044  1 !
  0045  1 !       V03-005 MCN0157         Maria del C. Nasr       22-Feb-1984
  0046  1 !               Use image activation routines to get image header and
  0047  1 !               image section descriptors, instead of reading blocks
  0048  1 !               directly.
  0049  1 !
  0050  1 !       V03-004 MCN0148         Maria del C. Nasr       6-Feb-1984
  0051  1 !               Supply channel number address to LIB$_CREMAPSEC when
  0052  1 !               doing a PATCH/ABSOLUTE/NONEW_VERSION.  In that way,
  0053  1 !               the file is only opened once.
  0054  1 !
  0055  1 !       V03-003 MTR0025         Mike Rhodes                 8-Aug-1983
  0056  1 !               Add new routine BUILD_IHD to support the /ABSOLUTE feature.
  0057  1 !               The /ABSOLUTE feature allows a user to patch ANY file via
```

```
;    58          0058  1 !              absolute (virtual) location values.
;    59          0059  1 !
;    60          0060  1 !      V03-002 MTR0016         Mike Rhodes             29-Oct-1982
;    61          0061  1 !              Modify PAT$GET_IHD to save the image type identifier word
;    62          0062  1 !              in the global scalar PAT$GW_IMGTYP (later restored by
;    63          0063  1 !              PAT$WRTIMG).
;    64          0064  1 !
;    65          0065  1 !      V03-001 MTR0007         Mike Rhodes             14-Jun-1982
;    66          0066  1 !              Use shared system messages.  Affected modules include:
;    67          0067  1 !              DYNMEM.B32, PATBAS.B32, PATCMD.B32, PATIHD.B32, PATINT.B32,
;    68          0068  1 !              PATIO.B32, PATMAI.B32, PATMSG.MSG, PATWRT.B32, and PATSPA.B32.
;    69          0069  1 !
;    70          0070  1 !              The shared messages are defined by DYNMEM.B32's invocation of
;    71          0071  1 !              SHRMSG.REQ and we simply link against these symbols.  They are
;    72          0072  1 !              declared as external literals below.
;    73          0073  1 !
;    74          0074  1 !      V02-008 MTR0001         Mike Rhodes             14-Oct-1981
;    75          0075  1 !              Modify routine PAT$CREMAP to allow the create and map
;    76          0076  1 !              section system service to do expand region mapping
;    77          0077  1 !              within P0 space.  This eliminates PATCH's trying to
;    78          0078  1 !              remember the last mapped address and getting errors
;    79          0079  1 !              due to stepping on RMS buffers in P0.
;    80          0080  1 !
;    81          0081  1 !      V02-007 KDM0044         Kathleen D. Morse       03-MAR-1981
;    82          0082  1 !              Reformat some comment lines.
;    83          0083  1 !
;    84          0084  1 !      V02-006 PCG0001         Peter George            02-FEB-1981
;    85          0085  1 !              Add require statement for LIB$:PATDEF.REQ
;    86          0086  1 !
;    87          0087  1 !
;    88          0088  1 !--
;    90         0089  1 !
;    91         0090  1 ! TABLE OF CONTENTS:
;    92         0091  1 !
;    93         0092  1
;    94         0093  1 FORWARD ROUTINE
;    95         0094  1         PAT$GET_IHD: NOVALUE,                            ! READS AND PROCESSES IMAGE HEADER
;    96         0095  1         PAT$CREMAP: NOVALUE,                             ! CREATES AND MAPS IMAGE SECTIONS
;    97         0096  1         BUILD_IHD: NOVALUE;                              ! BUILDS A PHONY IMAGE HEADER AND ISE LIST.
;    98         0097  1
;    99         0098  1 !
;   100         0099  1 ! INCLUDE FILES:
;   101         0100  1 !
;   102         0101  1
;   103         0102  1 LIBRARY 'SYS$LIBRARY:LIB.L32';                          ! SYSTEM STRUCTURE DEFINITIONS
;   104         0103  1 REQUIRE 'SRC$:PATPCT.REQ';                              ! DEFINES PSECTS
;   105         0143  1 REQUIRE 'SRC$:PREFIX.REQ';                              ! DEFINES STRUCTURE MACROS
;   106         0331  1 REQUIRE 'SRC$:PATPRE.REQ';                              ! DEFINES PATCH STRUCTURES
;   107         0494  1 REQUIRE 'LIB$:PATDEF.REQ';                              ! Defines literals
;   108         0548  1 REQUIRE 'LIB$:PATMSG.REQ';                              ! DEFINE ERROR CODES
;   109         0722  1 REQUIRE 'SRC$:PATGEN.REQ';                              ! DEFINE QUADWORD SIZE
;   110         0944  1 REQUIRE 'SRC$:SYSLIT.REQ';                              ! DEFINE TTY_OUT_WIDTH
;   111         0994  1 REQUIRE 'IMGMSGDEF';                                    ! IMAGE ACTIVATOR DEF
;   112         1080  1
;   113         1081  1 !
;   114         1082  1 ! MACROS:
;   115         1083  1 !
;   116         1084  1
;   117         1085  1 !
;   118         1086  1 ! EQUATED SYMBOLS:
;   119         1087  1 !
;   120         1088  1
;   121         1089  1 LITERAL
;   122         1090  1         START_OFF = 0,                                   ! OFFSET TO STARTING ADDRESS
;   123         1091  1         END_OFF = 1,                                     ! OFFSET TO ENDING ADDRESS
;   124         1092  1         IDENT_SIZE = 2;                                  ! SIZE OF IDENT FIELD
;   125         1093  1
;   126         1094  1 !
;   127         1095  1 ! EXTERNAL REFERENCES:
;   128         1096  1 !
;   129         1097  1
;   130         1098  1 EXTERNAL
;   131         1099  1         PAT$GL_IHPPTR: REF BLOCK[,BYTE],                 ! POINTER TO IMAGE HEADER
;   132         1100  1         PAT$CP_OUT_STR,                                  ! POINTER TO OUTPUT BUFFER
;   133         1101  1         PAT$GL_BUF_SIZ,                                  ! SIZE OF MESSAGE IN OUTPUT BUFFER
;   134         1102  1         PAT$GL_CHANUM,                                   ! CHANNEL NUMBER
;   135         1103  1         PAT$GL_EXPANDVA,                                 ! FIRST EXPAND VA ADDRESS
;   136         1104  1         PAT$GL_PATAREA,                                  ! POINTER TO PATCH AREA DESCRIPTOR
;   137         1105  1         PAT$GL_ERRCODE,                                  ! GLOBAL ERROR CODE
;   138         1106  1         PAT$GL_FLAGS : BITVECTOR [32],                   ! CLI RESULTANT PARSE FLAGS
;   139         1107  1         PAT$GL_ISVADDR: VECTOR[,LONG],                   ! LAST MAPPED ADDRESS PAIR
;   140         1108  1         PAT$GB_INPBUF,                                   ! INPUT BUFFER FOR IMAGE FILE
;   141         1109  1         PAT$GL_IMGHDR: REF BLOCK[,BYTE],                 ! IMAGE HEADER DATA ADDRESS
;   142         1110  1         PAT$GL_ISELHD,                                   ! IMAGE SECTION TABLE LIST HEAD
;   143         1111  1         PAT$GL_ISETAIL : REF BLOCK[,BYTE],               ! LAST ENTRY IN IMAGE SECTION TABLE
;   144         1112  1         PAT$GL_NEWVPNMX,                                 ! MAX VPN IN IMAGE FILE
;   145         1113  1         PAT$GL_NEWVBNMX,                                 ! MAX VBN IN IMAGE FILE
;   146         1114  1         PAT$GL_OLDVBNMX,                                 ! OLD IMAGE FILE MAX ISD VBN
;  147        1115  1          PAT$GB_OLDNAME,                                   ! OLD IMAGE FILE NAME
;  148        1116  1          PAT$GL_OLDFAB: BLOCK[,BYTE],                      ! FAB FOR INPUT IMAGE FILE
;  149        1117  1          PAT$GL_OLDNBK: BLOCK[,BYTE],                      ! NAME BLOCK FOR INPUT IMAGE FILE
;  150        1118  1          PAT$GL_OLDRAB: BLOCK[,BYTE],                      ! RAB FOR INPUT IMAGE FILE
;  151        1119  1          PAT$GL_JNLRAB: BLOCK[,BYTE],                      ! RAB FOR JOURNAL FILE
;  152        1120  1          PAT$GW_IMGTYP: WORD;                              ! IMAGE TYPE IDENTIFIER
;  153        1121  1
;  154        1122  1  EXTERNAL ROUTINE
;  155        1123  1          PAT$ADD_PAL,                                      ! ADD PATCH AREA TO LIST
;  156        1124  1          PAT$BUILD_ISE,                                    ! BUILD AN IMAGE SECTION ENTRY AND ASSOC. IS
;  157        1125  1          PAT$FAO_PUT,                                      ! FORMATS OUTPUT MESSAGE
;  158        1126  1          PAT$WRITEFILE,                                    ! WRITES OUTPUT MESSAGE TO A FILE
;  159        1127  1          PAT$ALLOBLK,                                      ! ALLOCATES BLOCK OF FREE MEMORY
;  160        1128  1          GETFILDSC,                                        ! Returns the address of a file name descrip
;  161        1129  1          IMG$DECODE_IHD    : ADDRESSING_MODE (GENERAL),    ! Gets image header
;  162        1130  1          IMG$GET_NEXT_ISD  : ADDRESSING_MODE (GENERAL),    ! Gets image section desc
;  163        1131  1          LIB$_CREMAPSEC;                                   ! CREATES AND MAPS SECTIONS
;  164        1132  1
;  165        1133  1  EXTERNAL LITERAL
;  166        1134  1  !
;  167        1135  1  ! Define shared message references.  (resolved @ link time)
;  168        1136  1  !
;  169        1137  1          PAT$_CLOSEIN,                                     ! Error closing input file.
;  170        1138  1          PAT$_CLOSEOUT,                                    ! Error closing output file.
;  171        1139  1          PAT$_OPENIN,                                      ! Error opening input file.
;  172        1140  1          PAT$_OPENOUT,                                     ! Error opening output file.
;  173        1141  1          PAT$_READERR,                                     ! Error reading from file.
;  174        1142  1          PAT$_SYSERROR,                                    ! System Service error.
;  175        1143  1          PAT$_WRITEERR;                                    ! Error writing to file.
;  176        1144  1
;  177        1145  1  !
;  178        1146  1  ! OWN STORAGE:
;  179        1147  1  !
;  180        1148  1
;  181        1149  1  OWN
;  182        1150  1          BLKBUF: BLOCK [512,BYTE],                         ! Buffer where image blocks are read into
;  183        1151  1          CURISD: REF BLOCK[,BYTE],                         ! Current image section descriptor (ISD)
;  184        1152  1          INPBUF: REF BLOCK[,BYTE] INITIAL(PAT$GB_INPBUF);  ! Input buffer (used by IHD and ISD)
;  185        1153  1
;  186        1154  1  BIND
;  187        1155  1          MAJOR_IDENT= UPLIT (%ASCII'02'),                  ! VALUE OF MAJOR IDENT ABLE TO PATCH
;  188        1156  1          MINOR_IDENT= UPLIT (%ASCII'01');                  ! MINIMUM VALUE OF MINOR IDENT ABLE TO PATCH
```

```
1 GLOBAL ROUTINE PAT$GET_IHD :NOVALUE =                                     ! READS AND PROCESSES THE IMAGE HEADER
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       THIS ROUTINE READS THE IMAGE HEADER AND STORES THE DATA.
1 !       IT THEN PROCESSES EACH IMAGE SECTION, BUILDING THE IMAGE SECTION TABLE.
1 !       THE IMAGE SECTION ENTRIES CONSIST OF:
1 !
1 !               1. LINK TO NEXT IMAGE SECTION ENTRY (ISE)
1 !               2. STARTING MAPPED VIRTUAL ADDRESS
1 !               3. ENDING MAPPED VIRTUAL ADDRESS
1 !               4. STARTING IMAGE VIRTUAL ADDRESS WITHIN IMAGE SECTION
1 !               5. ENDING IMAGE VIRTUAL ADDRESS WITHIN IMAGE SECTION
1 !               6. IMAGE SECTION DESCRIPTOR AS READ FROM IMAGE HEADER
1 !
1 !       THE MAPPED ADDRESSES ARE INITIALIZED TO ZERO.  WHEN THE PAGES
1 !       ARE ACCESSED BY A PATCH COMMAND, THE IMAGE SECTION IS MAPPED
1 !       AND THE MAPPED ADDRESSES SET.
1 !
1 !       THE BEGINNING ADDRESS INTO WHICH THE IMAGE SECTIONS ARE TO
1 !       BE MAPPED IS ALSO INITIALIZED.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       THE OLD IMAGE FILE HAS BEEN SET UP FOR INPUT.
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       THE IMAGE SECTION TABLE IS SET UP AND THE IMAGE HEADER DATA STORED.
1 !
1 ! ROUTINE VALUE:
1 !
1 ! COMPLETION CODES:
1 !
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !
1 !       NONE
1 !
1 !--
1
2 BEGIN
2 BIND
2       TIME_STR = UPLIT (%ASCIC 'DATE/TIME OF PATCH:                   !%D'),
2       ECO_MSG_STR = UPLIT (%ASCIC 'ECO LEVELS SET:                    '),
2       ECO_LVL_STR = UPLIT (%ASCIC '!UL, ');
2
2
2 LITERAL
2       NO_MORE_ISE = 65535;                                                ! CODE FOR NO MORE ISE'S ON THIS PAGE
2
```

```
;  247        1214  2 MAP
;  248        1215  2         PAT$GL_IMGHDR : REF BLOCK[,BYTE];                             ! REFERENCE IMAGE HEADER AS A BLOCK
;  249        1216  2
;  250        1217  2 LOCAL
;  251        1218  2         ALIAS_ADR,
;  252        1219  2         ALLOCSIZE,                                                    ! SIZE OF IMAGE HEADER TO ALLOCATE
;  253        1220  2         DESPTR,                                                       ! DESTINATION STRING POINTER
;  254        1221  2         ECO_PTR : REF BITVECTOR,                                      ! POINTER TO ECO LEVEL BITS
;  255        1222  2         ECO_BIT,                                                      ! ECO BIT LEVEL COUNTER
;  256        1223  2         HDRVER_ADR,
;  257        1224  2         ISD_ADR,                                                      ! ADDR OF DECODED ISD
;  258        1225  2         ISEADR: REF BLOCK[,BYTE],                                     ! CONTAINS ADDRESS OF IMAGE SECTION ENTRY
;  259        1226  2         NXTPTR,                                                       ! STRING POINTER TO NEXT PART OF RECORD
;  260        1227  2         OUT_BUFFER : VECTOR[TTY_OUT_WIDTH,BYTE],                      ! OUTPUT MESSAGE BUFFER
;  261        1228  2         SRCPTR,                                                       ! SOURCE STRING POINTER
;  262        1229  2         VBN_ADR;                                                      ! Image header VBN
;  263        1230  2
;  264        1231  2 !++
;  265        1232  2 ! INITIALIZE THE IMAGE SECTION TABLE LIST HEAD.
;  266        1233  2 !--
;  267        1234  2 PAT$GL_ISELHD=0;                                                      ! SET END OF TABLE
;  268        1235  2 PAT$GL_ISETAIL=0;                                                     ! SET TAIL OF TABLE
;  269        1236  2
;  270        1237  2 !++
;  271        1238  2 ! INITIALIZE MAXIMUM NEW FILE VIRTUAL PAGE AND BLOCK NUMBERS.
;  272        1239  2 !--
;  273        1240  2 PAT$GL_NEWVBNMX = 0;
;  274        1241  2 PAT$GL_NEWVPNMX = 0;
;  275        1242  2
;  276        1243  2 ! Read the first block of the image header and store the data.  If we are
;  277        1244  2 ! patching the file in absolute mode, create a phony image header and ISD's
;  278        1245  2 ! for mapping.  Otherwise, get the real image header.
;  279        1246  2 !
;  280        1247  2
;  281        1248  2 IF .PAT$GL_FLAGS [PAT$S_ABSOLUTE]
;  282        1249  2 THEN
;  283        1250  2     BUILD_IHD (.INPBUF)
;  284        1251  2 ELSE
;  285        1252  3     IF NOT (PAT$GL_ERRCODE = IMG$DECODE_IHD ( .PAT$GL_CHANUM,
;  286        1253  3                                               BLKBUF,
;  287        1254  3                                               PAT$GB_INPBUF,
;  288        1255  3                                               VBN_ADR,
;  289        1256  3                                               NXTPTR,
;  290        1257  3                                               HDRVER_ADR,
;  291        1258  3                                               ALIAS_ADR ))
;  292        1259  2     THEN
;  293        1260  2         SIGNAL(PAT$_READERR,1,GETFILDSC(PAT$GL_OLDFAB),.PAT$GL_ERRCODE,0);
;  294        1261  2
;  295        1262  2 !++
;  296        1263  2 ! CHECK THAT THE PATCH UTILITY UNDERSTANDS THIS TYPE OF IMAGE HEADER.
;  297        1264  2 !--
;  298        1265  2 IF .INPBUF[IHD$W_MAJORID] NEQU .MAJOR_IDENT
;  299        1266  2 THEN
;  300        1267  2         SIGNAL(PAT$_BADIDENT,2,IDENT_SIZE,INPBUF[IHD$W_MAJORID]);
;  301        1268  2 IF .INPBUF[IHD$W_MINORID] LSSU .MINOR_IDENT
;  302        1269  2 THEN
;  303        1270  2         SIGNAL(PAT$_BADIDENT,2,IDENT_SIZE,INPBUF[IHD$W_MINORID]);
```

```
2
2 ! Store the image header for future use.  The buffer will be pointed to
2 ! by PAT$GL_IMGHDR.
2 !
2 ! If there is no patch section in the header, then enlarge it to include one.
2 !
2 ALLOCSIZE=.INPBUF[IHD$W_SIZE];                                                         ! ASSUME HEADER IS CORRECT SIZE
2 IF .INPBUF[IHD$W_PATCHOFF] EQL 0
2 THEN
2         ALLOCSIZE=.ALLOCSIZE + IHP$K_LENGTH;
2
2 PAT$ALLOBLK(.ALLOCSIZE,PAT$GL_IMGHDR);                                                 ! ALLOCATE STORAGE FOR IMAGE HEADER
2 SRCPTR=CH$PTR(.INPBUF,0);                                                              ! SET POINTER TO INPUT DATA
2 DESPTR=CH$PTR(.PAT$GL_IMGHDR,0);                                                       ! SET POINTER TO HEADER STORAGE
2 CH$MOVE(.INPBUF[IHD$W_SIZE],.SRCPTR,.DESPTR);                                          ! STORE HEADER DATA
2 PAT$GW_IMGTYP = .ALIAS_ADR;                                                            ! SAVE THE IMAGE TYPE IDENTIFIER
2
2 IF .PAT$GL_IMGHDR[IHD$W_PATCHOFF] EQL 0                                                ! IF THERE WAS NO PATCH SECTION
2 THEN                                                                                   ! THEN
3         BEGIN
3         PAT$GL_IMGHDR[IHD$W_PATCHOFF]=.PAT$GL_IMGHDR[IHD$W_SIZE]; ! SET OFFSET TO PATCH SECTION
3         PAT$GL_IMGHDR[IHD$W_SIZE]=.PAT$GL_IMGHDR[IHD$W_SIZE] + IHP$K_LENGTH; ! INCREMENT SIZE OF HEADER
3         PAT$GL_IHPPTR=CH$PTR(.PAT$GL_IMGHDR, .PAT$GL_IMGHDR[IHD$W_PATCHOFF]);
3         PAT$GL_IHPPTR[IHP$L_ECO1]=0;                                                   ! ZERO THE ECO LEVEL BITS
3         PAT$GL_IHPPTR[IHP$L_ECO2]=0;                                                   ! ZERO THE ECO LEVEL BITS
3         PAT$GL_IHPPTR[IHP$L_ECO3]=0;                                                   ! ZERO THE ECO LEVEL BITS
3         PAT$GL_IHPPTR[IHP$L_ECO4]=0;                                                   ! ZERO THE ECO LEVEL BITS
3         PAT$GL_IHPPTR[IHP$L_RW_PATADR]=0;                                              ! SET NO READ-WRITE PATCH AREA
3         PAT$GL_IHPPTR[IHP$L_RW_PATSIZ]=0;                                              ! SET NO READ-WRITE PATCH AREA
3         PAT$GL_IHPPTR[IHP$L_RO_PATADR]=0;                                              ! SET NO READ-ONLY PATCH AREA
3         PAT$GL_IHPPTR[IHP$L_RO_PATSIZ]=0;                                              ! SET NO READ-ONLY PATCH AREA
3         PAT$GL_IHPPTR[IHP$L_PATCOMTXT]=0;                                              ! SET NO PATCH COMMAND TEXT
3         END
2 ELSE
2         PAT$GL_IHPPTR=CH$PTR(.PAT$GL_IMGHDR, .PAT$GL_IMGHDR[IHD$W_PATCHOFF]);
2
2 PAT$GL_PATAREA = CH$PTR(PAT$GL_IHPPTR[IHP$L_RW_PATSIZ] ,0);                            ! SET POINTER TO PATCH AREA DESCRIPTOR
2 PAT$GL_ERRCODE=$GETTIM(TIMADR=PAT$GL_IHPPTR[IHP$Q_PATDATE]);                           ! SET LATEST PATCH DATE
2 IF NOT .PAT$GL_ERRCODE
2 THEN
2         SIGNAL(PAT$_SYSERROR,0,.PAT$GL_ERRCODE);                                                ! REPORT ERROR
2
2 !++
2 ! WRITE OUT PATCH TIME TO JOURNAL FILE.
2 !--
2 PAT$CP_OUT_STR = CH$PTR(OUT_BUFFER,0);
2 PAT$GL_BUF_SIZ = 0;
2 PAT$FAO_PUT(TIME_STR, PAT$GL_IHPPTR[IHP$Q_PATDATE]);
2 PAT$WRITEFILE(.PAT$GL_BUF_SIZ, CH$PTR(OUT_BUFFER, 0), PAT$GL_JNLRAB);
2
2 !++
2 ! NOW OUTPUT THE ECO LEVELS SET TO THE JOURNAL FILE.
2 !--
2 ECO_PTR = CH$PTR(PAT$GL_IHPPTR[IHP$L_ECO1], 0);
2 PAT$CP_OUT_STR = CH$PTR(OUT_BUFFER,0);
2 PAT$GL_BUF_SIZ = 0;
2 INCR ECO_BIT FROM PAT$K_MIN_ECO-1 TO PAT$K_MAX_ECO-1 BY 1
```

```
  2 DO
  3         BEGIN
  3         IF .ECO_PTR[.ECO_BIT]
  3         THEN
  4                 BEGIN
  4                 IF .PAT$GL_BUF_SIZ GEQ TTY_OUT_WIDTH-6
  4                 THEN
  5                         BEGIN
  5                         PAT$WRITEFILE(.PAT$GL_BUF_SIZ-2, CH$PTR(OUT_BUFFER, 0), PAT$GL_JNLRAB);
  5                         PAT$CP_OUT_STR = CH$PTR(OUT_BUFFER,0);
  5                         PAT$GL_BUF_SIZ = 0;
  4                         END;
  4                 IF .PAT$GL_BUF_SIZ EQL 0
  4                 THEN
  4                         PAT$FAO_PUT(ECO_MSG_STR);
  4                 PAT$FAO_PUT(ECO_LVL_STR, .ECO_BIT+1);
  3                 END;
  2         END;
  2 IF .PAT$GL_BUF_SIZ NEQ 0
  2 THEN
  2         PAT$WRITEFILE(.PAT$GL_BUF_SIZ-2, CH$PTR(OUT_BUFFER, 0), PAT$GL_JNLRAB);
  2 PAT$WRITEFILE(0, CH$PTR(OUT_BUFFER, 0), PAT$GL_JNLRAB);            ! OUTPUT BLANK LINE
  2
  2 !++
  2 ! NOW PLACE THE DEFAULT PATCH AREA AS THE FIRST ENTRY ON THE PATCH AREA LIST.
  2 !--
  2 PAT$ADD_PAL(.PAT$GL_IHPPTR[IHP$L_RW_PATADR],
  2             .PAT$GL_IHPPTR[IHP$L_RW_PATADR]+.PAT$GL_IHPPTR[IHP$L_RW_PATSIZ],
  2            PAL$K_ADD_PAREA);
  2
  2 !++
  2 ! FIND THE BOTTOM OF THE PATCH CODE AND INITIALIZE THE CURRENT ISD ADDRESS IN
  2 ! THE IMAGE HEADER RECORD TO GET READY FOR IMAGE SECTION PROCESSING.
  2 !--
P 2 PAT$GL_ERRCODE=$EXPREG(   PAGCNT=1
  2                         , RETADR=PAT$GL_ISVADDR);                   ! FIND BOTTOM OF PATCH CODE
  2 IF NOT .PAT$GL_ERRCODE
  2 THEN
  2         SIGNAL(PAT$_SYSERROR,0,.PAT$GL_ERRCODE);                            ! REPORT ERROR
  2 PAT$GL_EXPANDVA = .PAT$GL_ISVADDR[START_OFF];                       ! REMEMBER FIRST EXPAND ADDRESS
  2 PAT$GL_ISVADDR[END_OFF]=.PAT$GL_ISVADDR[START_OFF] - 1;             ! SET NEXT ADDRESS FOR CREMAP TO MAP OVER
  2
  2 !++
  2 ! Now process every image section descriptor from the image header when
  2 ! not in absolute mode.
  2 !--
  2 IF NOT .PAT$GL_FLAGS [PAT$S_ABSOLUTE]
  2 THEN
  3     BEGIN
  3
  3     LOCAL
  3         ALLOC_SIZE;                                             ! SIZE OF ISE TO ALLOCATE
  3
  3     WHILE 1 DO
  4         BEGIN
  4
  4         PAT$GL_ERRCODE = IMG$GET_NEXT_ISD ( .PAT$GL_CHANUM,
;   418      1385  4                               BLKBUF,
;   419      1386  4                               .PAT$GL_IMGHDR,
;   420      1387  4                               VBN_ADR,
;   421      1388  4                               NXTPTR,
;   422      1389  4                               PAT$GB_INPBUF,
;   423      1390  4                               HDRVER_ADR );
;   424      1391  4
;   425      1392  4      IF NOT .PAT$GL_ERRCODE
;   426      1393  4      THEN
;   427      1394  4          IF .PAT$GL_ERRCODE EQL IMG$_ENDOFHDR
;   428      1395  4          THEN
;   429      1396  4              EXITLOOP
;   430      1397  4          ELSE
;   431      1398  4              SIGNAL(PAT$_READERR,1,GETFILDSC(PAT$GL_OLDFAB),.PAT$GL_ERRCODE,0);
;   432      1399  4
;   433      1400  4      CURISD=.INPBUF;                                          ! SET CURRENT ISD ADDRESS
;   434      1401  4      ALLOC_SIZE = .CURISD[ISD$W_SIZE] + ISE$C_SIZE;           ! SET SIZE OF ISE
;   435      1402  4
;   436      1403  4      IF .CURISD[ISD$V_DZRO]
;   437      1404  4      THEN
;   438      1405  4              ALLOC_SIZE = .ALLOC_SIZE + A_QUADWORD;           ! ADD IN EXTRA SPACE FOR VBN AND IDENT
;   439      1406  4      !++
;   440      1407  4      ! ****** THIS CHECK IS A FUTURE FEATURE WHICH WILL INSURE SPACE FOR AN IDENT
;   441      1408  4      ! ****** LONGWORD IN ANY PROCESS PRIVATE IMAGE SECTION DESCRIPTOR.
;   442      1409  4      ! ****** THIS WILL ENABLE PATCH TO CREATE AN IDENT FOR A PROCESS
;   443      1410  4      ! ****** PRIVATE IMAGE SECTION, WHICH WILL PROBABLY BE NECESSARY WHEN
;   444      1411  4      ! ****** GLOBAL SECTIONS ARE PATCHED AND BECOME PRIVATE SECTIONS.
;   445      1412  4      !--
;   446      1413  4      IF PAT$K_LENPRIV NEQ ISD$K_LENPRIV                       ! CHECK IF LENGTH INCLUDES IDENT
;   447      1414  4      THEN
;   448      1415  4              IF .CURISD[ISD$W_SIZE] EQL ISD$K_LENPRIV         ! CHECK IF THIS IS PROCESS PRIVATE ISD
;   449      1416  4              THEN
;   450      1417  4                      ALLOC_SIZE = .ALLOC_SIZE + A_LONGWORD;   ! ADD IN IDENT LENGTH
;   451      1418  4      PAT$ALLOBLK(.ALLOC_SIZE,ISEADR);                         ! GET IMAGE SECTION ENTRY
;   452      1419  4      DESPTR=CH$PTR(.ISEADR,ISE$C_SIZE);                       ! SET DESTINATION POINTER
;   453      1420  4      CH$MOVE(.CURISD[ISD$W_SIZE],.INPBUF,.DESPTR);            ! MOVE IN ISD
;   454      1421  4
;   455      1422  4      IF .PAT$GL_ISETAIL EQLA 0                                ! IF FIRST ENTRY
;   456      1423  4      THEN
;   457      1424  5              BEGIN
;   458      1425  5              PAT$GL_ISELHD=CH$PTR(.ISEADR, 0);                ! SET TABLE LIST HEAD
;   459      1426  5              PAT$GL_ISETAIL=CH$PTR(.ISEADR, 0);               ! SET TABLE TAIL
;   460      1427  5              END
;   461      1428  4      ELSE
;   462      1429  5              BEGIN
;   463      1430  5              PAT$GL_ISETAIL[ISE$L_NXTISE]=CH$PTR(.ISEADR, 0); ! SET LINK TO THIS ISE
;   464      1431  5              PAT$GL_ISETAIL=CH$PTR(.ISEADR, 0);               ! SET NEW TAIL OF TABLE
;   465      1432  4              END;
;   466      1433  4      ISEADR[ISE$L_NXTISE]=0;                                  ! SET FORWARD LINK
;   467      1434  4      ISEADR[ISE$L_IMGVST]=.CURISD[ISD$V_VPG]^9;               ! SET STARTING IMAGE VIRTUAL ADDRESS
;   468      1435  4      ISEADR[ISE$L_IMGVEND]=(.CURISD[ISD$V_VPG]+.CURISD[ISD$W_PAGCNT])^9 - 1; ! SET ENDING IMAGE VIRTUAL A
;   469      1436  4      ISEADR[ISE$L_MAPVST]=0;                                  ! SET NO START MAPPED ADDRESS
;   470      1437  4      ISEADR[ISE$L_MAPVEND]=0;                                 ! SET NO ENDING MAPPED ADDRESS
;   471      1438  4      IF .CURISD[ISD$B_TYPE] NEQ ISD$K_USRSTACK
;   472      1439  4      THEN
;   473      1440  4              IF .PAT$GL_NEWVPNMX LSSU .CURISD[ISD$V_VPG]      ! SEE IF LARGER VPN
;   474      1441  4              THEN
;  475           1442  4                      PAT$GL_NEWVPNMX = .CURISD[ISD$V_VPG] +.CURISD[ISD$W_PAGCNT] - 1;
;  476           1443  4        IF NOT .CURISD[ISD$V_DZRO]                                    ! IF NOT DEMAND ZERO
;  477           1444  4        THEN                                                          ! THEN CHECK IF LARGER VBN
;  478           1445  4                IF .PAT$GL_NEWVBNMX LSS .CURISD[ISD$L_VBN]
;  479           1446  4                THEN
;  480           1447  4                        PAT$GL_NEWVBNMX = .CURISD[ISD$L_VBN] + .CURISD[ISD$W_PAGCNT] - 1;
;  481           1448  3        END;
;  482           1449  2    END;
;  483           1450  2 PAT$GL_OLDVBNMX = .PAT$GL_NEWVBNMX;                                  ! REMEMBER OLD FILE MAX ISD VBN USED
;  484           1451  1 END;                                                                 ! END OF PAT$GET_IHD


                                                                        .TITLE  PATIHD
                                                                        .IDENT  \V04-000\

                                                                        .PSECT  _PAT$PLIT,NOWRT,NOEXE,0

                                     00  00  32  30   00000 P.AAA:     .ASCII  \02\<0><0>                                  ;
                                     00  00  31  30   00004 P.AAB:     .ASCII  \01\<0><0>                                  ;
50  20  46  4F  20  45  4D  49  54  2F  45  54  41  44  18   00008 P.AAC:     .ASCII  <24>\DATE/TIME OF PATCH:\<9><9>\!%\   ;
                        25  21  09  09  3A  48  43  54  41   00017                                                          ;
                                     00  00  00  44   00020            .ASCII  \D\<0><0><0>                                ;
54  45  53  20  53  4C  45  56  45  4C  20  4F  43  45  11   00024 P.AAD:     .ASCII  <17>\ECO LEVELS SET:\<9><9><0><0>      ;
                                 00  00  09  09  3A   00033                                                                 ;
                     00  00  20  2C  4C  55  21  05   00038 P.AAE:     .ASCII  <5>\!UL, \<0><0>                            ;

                                                                        .PSECT  _PAT$OWN,NOEXE,2

                                                        00000 BLKBUF:  .BLKB   512
                                                        00200 CURISD:  .BLKB   4
                                             00000000G 00204 INPBUF:  .ADDRESS PAT$GB_INPBUF                              ;

                                                        ISE$C_SIZE==          20
                                                        TXT$C_SIZE==          4
                                                        PAL$C_SIZE==          16
                                                        ASD$C_SIZE==          9
                                                        FWR$C_SIZE==          24
                                                        MAJOR_IDENT=          P.AAA
                                                        MINOR_IDENT=          P.AAB
                                                        TIME_STR=             P.AAC
                                                        ECO_MSG_STR=          P.AAD
                                                        ECO_LVL_STR=          P.AAE
                                                                        .EXTRN  PAT$GL_IHPPTR, PAT$CP_OUT_STR
                                                                        .EXTRN  PAT$GL_BUF_SIZ, PAT$GL_CHANUM
                                                                        .EXTRN  PAT$GL_EXPANDVA
                                                                        .EXTRN  PAT$GL_PATAREA, PAT$GL_ERRCODE
                                                                        .EXTRN  PAT$GL_FLAGS, PAT$GL_ISVADDR
                                                                        .EXTRN  PAT$GB_INPBUF, PAT$GL_IMGHDR
                                                                        .EXTRN  PAT$GL_ISELHD, PAT$GL_ISETAIL
                                                                        .EXTRN  PAT$GL_NEWVPNMX
                                                                        .EXTRN  PAT$GL_NEWVBNMX
                                                                        .EXTRN  PAT$GL_OLDVBNMX
                                                                        .EXTRN  PAT$GB_OLDNAME, PAT$GL_OLDFAB
                                                                        .EXTRN  PAT$GL_OLDNBK, PAT$GL_OLDRAB
                                                                        .EXTRN  PAT$GL_JNLRAB, PAT$GW_IMGTYP
                                                                        .EXTRN  PAT$ADD_PAL, PAT$BUILD_ISE
                                                                        .EXTRN  PAT$FAO_PUT, PAT$WRITEFILE
```

```
                                                                          .EXTRN  PAT$ALLOBLK, GETFILDSC
                                                                          .EXTRN  IMG$DECODE_IHD, IMG$GET_NEXT_ISD
                                                                          .EXTRN  LIB$_CREMAPSEC, PAT$_CLOSEIN
                                                                          .EXTRN  PAT$_CLOSEOUT, PAT$_OPENIN
                                                                          .EXTRN  PAT$_OPENOUT, PAT$_READERR
                                                                          .EXTRN  PAT$_SYSERROR, PAT$_WRITEERR
                                                                          .EXTRN  SYS$GETTIM, SYS$EXPREG

                                                                          .PSECT  _PAT$CODE,NOWRT,2

                                                          0FFC 00000      .ENTRY  PAT$GET_IHD, Save R2,R3,R4,R5,R6,R7,R8,R9,-   ; 1157
                                                                                  R10,R11                                       ;
                                          5B 00000000G  EF  9E 00002      MOVAB   PAT$GL_ERRCODE, R11                           ;
                                          5A 00000000'  EF  9E 00009      MOVAB   INPBUF, R10                                   ;
                                          5E      FF68  CE  9E 00010      MOVAB   -152(SP), SP                                  ;
                                             00000000G  EF  D4 00015      CLRL    PAT$GL_ISELHD                                 ; 1234
                                             00000000G  EF  D4 0001B      CLRL    PAT$GL_ISETAIL                                ; 1235
                                             00000000G  EF  D4 00021      CLRL    PAT$GL_NEWVBNMX                               ; 1240
                                             00000000G  EF  D4 00027      CLRL    PAT$GL_NEWVPNMX                               ; 1241
                            0B 00000000G  EF            06  E1 0002D      BBC     #6, PAT$GL_FLAGS, 1$                          ; 1248
                                                        6A  DD 00035      PUSHL   INPBUF                                        ; 1250
                               00000000V  EF            01  FB 00037      CALLS   #1, BUILD_IHD                                 ;
                                                        4A  11 0003E      BRB     2$                                            ;
                                                        5E  DD 00040 1$:  PUSHL   SP                                            ; 1252
                                                    08  AE  9F 00042      PUSHAB  HDRVER_ADR                                    ;
                                                    10  AE  9F 00045      PUSHAB  NXTPTR                                        ;
                                                    18  AE  9F 00048      PUSHAB  VBN_ADR                                       ;
                                             00000000G  EF  9F 0004B      PUSHAB  PAT$GB_INPBUF                                 ;
                                                  FDFC  CA  9F 00051      PUSHAB  BLKBUF                                        ;
                                             00000000G  EF  DD 00055      PUSHL   PAT$GL_CHANUM                                 ;
                               00000000G  00            07  FB 0005B      CALLS   #7, IMG$DECODE_IHD                            ;
                                          6B            50  D0 00062      MOVL    R0, PAT$GL_ERRCODE                            ;
                                          22            50  E8 00065      BLBS    R0, 2$                                        ;
                                                        7E  D4 00068      CLRL    -(SP)                                         ; 1260
                                                        6B  DD 0006A      PUSHL   PAT$GL_ERRCODE                                ;
                                             00000000G  EF  9F 0006C      PUSHAB  PAT$GL_OLDFAB                                 ;
                               00000000G  EF            01  FB 00072      CALLS   #1, GETFILDSC                                 ;
                                                        50  DD 00079      PUSHL   R0                                            ;
                                                        01  DD 0007B      PUSHL   #1                                            ;
                                             00000000G  8F  DD 0007D      PUSHL   #PAT$_READERR                                 ;
                               00000000G  00            05  FB 00083      CALLS   #5, LIB$SIGNAL                                ;
                                          50            6A  D0 0008A 2$:  MOVL    INPBUF, R0                                    ; 1265
00000000'   EF        0C    A0            10            00  ED 0008D      CMPZV   #0, #16, 12(R0), MAJOR_IDENT                  ;
                                                        14  13 00097      BEQL    3$                                            ;
                                                    0C  A0  9F 00099      PUSHAB  12(R0)                                        ; 1267
                                                        02  DD 0009C      PUSHL   #2                                            ;
                                                        02  DD 0009E      PUSHL   #2                                            ;
                                              006D8164  8F  DD 000A0      PUSHL   #7176548                                      ;
                               00000000G  00            04  FB 000A6      CALLS   #4, LIB$SIGNAL                                ;
                                          50            6A  D0 000AD 3$:  MOVL    INPBUF, R0                                    ; 1268
00000000'   EF        0E    A0            10            00  ED 000B0      CMPZV   #0, #16, 14(R0), MINOR_IDENT                  ;
                                                        14  1E 000BA      BGEQU   4$                                            ;
                                                    0E  A0  9F 000BC      PUSHAB  14(R0)                                        ; 1270
                                                        02  DD 000BF      PUSHL   #2                                            ;
                                                        02  DD 000C1      PUSHL   #2                                            ;
                                              006D8164  8F  DD 000C3      PUSHL   #7176548                                      ;
                               00000000G  00            04  FB 000C9      CALLS   #4, LIB$SIGNAL                                ;
```

```
                       50           6A D0 000D0 4$:       MOVL    INPBUF, R0                                  ; 1277
                       51           60 3C 000D3           MOVZWL  (R0), ALLOCSIZE                             ;
                                 08 A0 B5 000D6           TSTW    8(R0)                                       ; 1278
                                    03 12 000D9           BNEQ    5$                                          ;
                       51           2C C0 000DB           ADDL2   #44, ALLOCSIZE                              ; 1280
                          00000000G EF 9F 000DE 5$:       PUSHAB  PAT$GL_IMGHDR                               ; 1282
                                    51 DD 000E4           PUSHL   ALLOCSIZE                                   ;
             00000000G EF           02 FB 000E6           CALLS   #2, PAT$ALLOBLK                             ;
                       50           6A D0 000ED           MOVL    INPBUF, SRCPTR                              ; 1283
                       57 00000000G EF D0 000F0           MOVL    PAT$GL_IMGHDR, R7                           ; 1284
                       56           57 D0 000F7           MOVL    R7, DESPTR                                  ;
          66           60        00 BA 28 000FA           MOVC3   @INPBUF, (SRCPTR), (DESPTR)                 ; 1285
             00000000G EF           6E B0 000FF           MOVW    ALIAS_ADR, PAT$GW_IMGTYP                    ; 1286
                                 08 A7 B5 00106           TSTW    8(R7)                                       ; 1288
                                    2A 12 00109           BNEQ    6$                                          ;
                    08 A7           67 B0 0010B           MOVW    (R7), 8(R7)                                 ; 1291
                       67           2C A0 0010F           ADDW2   #44, (R7)                                   ; 1292
                       50        08 A7 3C 00112           MOVZWL  8(R7), R0                                   ; 1293
00000000G EF           57           50 C1 00116           ADDL3   R0, R7, PAT$GL_IHPPTR                       ;
                       50 00000000G EF D0 0011E           MOVL    PAT$GL_IHPPTR, R0                           ; 1294
                       60           7C 00125              CLRQ    (R0)                                        ;
                                 08 A0 7C 00127           CLRQ    8(R0)                                       ; 1296
                                 10 A0 7C 0012A           CLRQ    16(R0)                                      ; 1299
                                 18 A0 7C 0012D           CLRQ    24(R0)                                      ; 1301
                                 20 A0 D4 00130           CLRL    32(R0)                                      ; 1302
                                    0C 11 00133           BRB     7$                                          ; 1288
                       50        08 A7 3C 00135 6$:       MOVZWL  8(R7), R0                                   ; 1305
00000000G EF           57           50 C1 00139           ADDL3   R0, R7, PAT$GL_IHPPTR                       ;
00000000G EF 00000000G EF           10 C1 00141 7$:       ADDL3   #16, PAT$GL_IHPPTR, PAT$GL_PATAREA          ; 1307
          7E 00000000G EF           24 C1 0014D           ADDL3   #36, PAT$GL_IHPPTR, -(SP)                   ; 1308
             00000000G 00           01 FB 00155           CALLS   #1, SYS$GETTIM                              ;
                       6B           50 D0 0015C           MOVL    R0, PAT$GL_ERRCODE                          ;
                       11           6B E8 0015F           BLBS    PAT$GL_ERRCODE, 8$                          ; 1309
                                    6B DD 00162           PUSHL   PAT$GL_ERRCODE                              ; 1311
                                    7E D4 00164           CLRL    -(SP)                                       ;
                          00000000G 8F DD 00166           PUSHL   #PAT$_SYSERROR                              ;
             00000000G 00           03 FB 0016C           CALLS   #3, LIB$SIGNAL                              ;
             00000000G EF        14 AE 9E 00173 8$:       MOVAB   OUT_BUFFER, PAT$CP_OUT_STR                  ; 1316
                          00000000G EF D4 0017B           CLRL    PAT$GL_BUF_SIZ                              ; 1317
          7E 00000000G EF           24 C1 00181           ADDL3   #36, PAT$GL_IHPPTR, -(SP)                   ; 1318
                          00000000' EF 9F 00189           PUSHAB  TIME_STR                                    ;
             00000000G EF           02 FB 0018F           CALLS   #2, PAT$FAO_PUT                             ;
                          00000000G EF 9F 00196           PUSHAB  PAT$GL_JNLRAB                               ; 1319
                                 18 AE 9F 0019C           PUSHAB  OUT_BUFFER                                  ;
                          00000000G EF DD 0019F           PUSHL   PAT$GL_BUF_SIZ                              ;
             00000000G EF           03 FB 001A5           CALLS   #3, PAT$WRITEFILE                           ;
                       53 00000000G EF D0 001AC           MOVL    PAT$GL_IHPPTR, ECO_PTR                      ; 1324
             00000000G EF        14 AE 9E 001B3           MOVAB   OUT_BUFFER, PAT$CP_OUT_STR                  ; 1325
                          00000000G EF D4 001BB           CLRL    PAT$GL_BUF_SIZ                              ; 1326
                                    52 D4 001C1           CLRL    ECO_BIT                                     ; 1330
          58           63           52 E1 001C3 9$:       BBC     ECO_BIT, (ECO_PTR), 12$                     ;
              0000007E 8F 00000000G EF D1 001C7           CMPL    PAT$GL_BUF_SIZ, #126                        ; 1333
                                    26 19 001D2           BLSS    10$                                         ;
                          00000000G EF 9F 001D4           PUSHAB  PAT$GL_JNLRAB                               ; 1336
                                 18 AE 9F 001DA           PUSHAB  OUT_BUFFER                                  ;
          7E 00000000G EF           02 C3 001DD           SUBL3   #2, PAT$GL_BUF_SIZ, -(SP)                   ;
             00000000G EF           03 FB 001E5           CALLS   #3, PAT$WRITEFILE                           ;
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              00000000G  EF        14  AE  9E 001EC        MOVAB    OUT_BUFFER, PAT$CP_OUT_STR                    ; 1337
                            00000000G  EF  D4 001F4        CLRL     PAT$GL_BUF_SIZ                                ; 1338
                            00000000G  EF  D5 001FA  10$:  TSTL     PAT$GL_BUF_SIZ                                ; 1340
                                       0D  12 00200        BNEQ     11$                                           ;
                            00000000'  EF  9F 00202        PUSHAB   ECO_MSG_STR                                   ; 1342
              00000000G  EF            01  FB 00208        CALLS    #1, PAT$FAO_PUT                               ;
                                   01  A2  9F 0020F  11$:  PUSHAB   1(ECO_BIT)                                    ; 1343
                            00000000'  EF  9F 00212        PUSHAB   ECO_LVL_STR                                   ;
              00000000G  EF            02  FB 00218        CALLS    #2, PAT$FAO_PUT                               ;
           9C        52      0000007F  8F  F3 0021F  12$:  AOBLEQ   #127, ECO_BIT, 9$                             ; 1327
                     50     00000000G  EF  D0 00227        MOVL     PAT$GL_BUF_SIZ, R0                            ; 1346
                                       13  13 0022E        BEQL     13$                                           ;
                            00000000G  EF  9F 00230        PUSHAB   PAT$GL_JNLRAB                                 ; 1348
                                   18  AE  9F 00236        PUSHAB   OUT_BUFFER                                    ;
                                   FE  A0  9F 00239        PUSHAB   -2(R0)                                        ;
              00000000G  EF            03  FB 0023C        CALLS    #3, PAT$WRITEFILE                             ;
                            00000000G  EF  9F 00243  13$:  PUSHAB   PAT$GL_JNLRAB                                 ; 1349
                                   18  AE  9F 00249        PUSHAB   OUT_BUFFER                                    ;
                                       7E  D4 0024C        CLRL     -(SP)                                         ;
              00000000G  EF            03  FB 0024E        CALLS    #3, PAT$WRITEFILE                             ;
                                       7E  D4 00255        CLRL     -(SP)                                         ; 1354
                     50     00000000G  EF  D0 00257        MOVL     PAT$GL_IHPPTR, R0                             ; 1355
           7E        14  A0        10  A0  C1 0025E        ADDL3    16(R0), 20(R0), -(SP)                         ;
                                   14  A0  DD 00264        PUSHL    20(R0)                                        ; 1354
              00000000G  EF            03  FB 00267        CALLS    #3, PAT$ADD_PAL                               ;
                                       7E  7C 0026E        CLRQ     -(SP)                                         ; 1363
                            00000000G  EF  9F 00270        PUSHAB   PAT$GL_ISVADDR                                ;
                                       01  DD 00276        PUSHL    #1                                            ;
              00000000G  00            04  FB 00278        CALLS    #4, SYS$EXPREG                                ;
                         6B            50  D0 0027F        MOVL     R0, PAT$GL_ERRCODE                            ;
                         11            6B  E8 00282        BLBS     PAT$GL_ERRCODE, 14$                           ; 1364
                                       6B  DD 00285        PUSHL    PAT$GL_ERRCODE                                ; 1366
                                       7E  D4 00287        CLRL     -(SP)                                         ;
                            00000000G  8F  DD 00289        PUSHL    #PAT$_SYSERROR                                ;
              00000000G  00            03  FB 0028F        CALLS    #3, LIB$SIGNAL                                ;
              00000000G  EF 00000000G  EF  D0 00296  14$:  MOVL     PAT$GL_ISVADDR, PAT$GL_EXPANDVA               ; 1367
00000000G  EF 00000000G  EF            01  C3 002A1        SUBL3    #1, PAT$GL_ISVADDR, PAT$GL_ISVADDR+4          ; 1368
           03 00000000G  EF            06  E1 002AD        BBC      #6, PAT$GL_FLAGS, 16$                         ; 1374
                                     0112  31 002B5  15$:  BRW      24$                                           ;
                                   04  AE  9F 002B8  16$:  PUSHAB   HDRVER_ADR                                    ; 1384
                            00000000G  EF  9F 002BB        PUSHAB   PAT$GB_INPBUF                                 ;
                                   10  AE  9F 002C1        PUSHAB   NXTPTR                                        ;
                                   18  AE  9F 002C4        PUSHAB   VBN_ADR                                       ;
                            00000000G  EF  DD 002C7        PUSHL    PAT$GL_IMGHDR                                 ; 1386
                                 FDFC  CA  9F 002CD        PUSHAB   BLKBUF                                        ; 1384
                            00000000G  EF  DD 002D1        PUSHL    PAT$GL_CHANUM                                 ;
              00000000G  00            07  FB 002D7        CALLS    #7, IMG$GET_NEXT_ISD                          ;
                         6B            50  D0 002DE        MOVL     R0, PAT$GL_ERRCODE                            ;
                         2B            50  E8 002E1        BLBS     R0, 17$                                       ; 1392
               084D8640  8F            50  D1 002E4        CMPL     R0, #139298368                                ; 1394
                                       C8  13 002EB        BEQL     15$                                           ;
                                       7E  D4 002ED        CLRL     -(SP)                                         ; 1398
                                       50  DD 002EF        PUSHL    R0                                            ;
                            00000000G  EF  9F 002F1        PUSHAB   PAT$GL_OLDFAB                                 ;
              00000000G  EF            01  FB 002F7        CALLS    #1, GETFILDSC                                 ;
                                       50  DD 002FE        PUSHL    R0                                            ;
                                       01  DD 00300        PUSHL    #1                                            ;
```

```
                                         00000000G 8F DD 00302         PUSHL   #PAT$_READERR                               ;
                           00000000G  00           05 FB 00308         CALLS   #5, LIB$SIGNAL                              ;
                                 FC   AA           6A D0 0030F 17$:    MOVL    INPBUF, CURISD                              ; 1400
                                      50      FC   AA D0 00313         MOVL    CURISD, R0                                  ; 1401
                                      59           60 3C 00317         MOVZWL  (R0), ALLOC_SIZE                            ;
                                      59           14 C0 0031A         ADDL2   #20, ALLOC_SIZE                             ;
                        03       08   A0           02 E1 0031D         BBC     #2, 8(R0), 18$                              ; 1403
                                      59           08 C0 00322         ADDL2   #8, ALLOC_SIZE                              ; 1405
                                      10           60 B1 00325 18$:    CMPW    (R0), #16                                   ; 1415
                                                   03 12 00328         BNEQ    19$                                         ;
                                      59           04 C0 0032A         ADDL2   #4, ALLOC_SIZE                              ; 1417
                                              10   AE 9F 0032D 19$:    PUSHAB  ISEADR                                      ; 1418
                                                   59 DD 00330         PUSHL   ALLOC_SIZE                                  ;
                           00000000G  EF           02 FB 00332         CALLS   #2, PAT$ALLOBLK                             ;
                                      58      10   AE D0 00339         MOVL    ISEADR, R8                                  ; 1419
                                      56      14   A8 9E 0033D         MOVAB   20(R8), DESPTR                              ;
                                      57      FC   AA D0 00341         MOVL    CURISD, R7                                  ; 1420
                        66       00   BA           67 28 00345         MOVC3   (R7), @INPBUF, (DESPTR)                     ;
                                      50 00000000G EF D0 0034A         MOVL    PAT$GL_ISETAIL, R0                          ; 1422
                                                   09 12 00351         BNEQ    20$                                         ;
                           00000000G  EF           58 D0 00353         MOVL    R8, PAT$GL_ISELHD                           ; 1425
                                                   03 11 0035A         BRB     21$                                         ; 1422
                                      60           58 D0 0035C 20$:    MOVL    R8, (R0)                                    ; 1430
                           00000000G  EF           58 D0 0035F 21$:    MOVL    R8, PAT$GL_ISETAIL                          ; 1426
                                                   68 D4 00366         CLRL    (R8)                                        ; 1433
           50      04   A7            17           00 EF 00368         EXTZV   #0, #23, 4(R7), R0                          ; 1434
                   04   A8            50           09 78 0036E         ASHL    #9, R0, 4(R8)                               ;
           51      04   A7            17           00 EF 00373         EXTZV   #0, #23, 4(R7), R1                          ; 1435
                                      50      02   A7 3C 00379         MOVZWL  2(R7), R0                                   ;
                                      51           50 C0 0037D         ADDL2   R0, R1                                      ;
                        50            51           09 78 00380         ASHL    #9, R1, R0                                  ;
                                 08   A8      FF   A0 9E 00384         MOVAB   -1(R0), 8(R8)                               ;
                                              0C   A8 7C 00389         CLRQ    12(R8)                                      ; 1436
                                 FD   8F      0B   A7 91 0038C         CMPB    11(R7), #253                                ; 1438
                                                   14 13 00391         BEQL    22$                                         ;
00000000G EF       04   A7            17           00 ED 00393         CMPZV   #0, #23, 4(R7), PAT$GL_NEWVPNMX             ; 1440
                                                   08 1B 0039D         BLEQU   22$                                         ;
                           00000000G  EF      FF   A1 9E 0039F         MOVAB   -1(R1), PAT$GL_NEWVPNMX                     ; 1442
                        1B       08   A7           02 E0 003A7 22$:    BBS     #2, 8(R7), 23$                              ; 1443
                                 0C   A7 00000000G EF D1 003AC         CMPL    PAT$GL_NEWVBNMX, 12(R7)                     ; 1445
                                                   11 18 003B4         BGEQ    23$                                         ;
                                      50      02   A7 3C 003B6         MOVZWL  2(R7), R0                                   ; 1447
                        57            50      0C   A7 C1 003BA         ADDL3   12(R7), R0, R7                              ;
                           00000000G  EF      FF   A7 9E 003BF         MOVAB   -1(R7), PAT$GL_NEWVBNMX                     ;
                                                 FEEE 31 003C7 23$:    BRW     16$                                         ; 1381
                           00000000G  EF 00000000G EF D0 003CA 24$:    MOVL    PAT$GL_NEWVBNMX, PAT$GL_OLDVBNMX            ; 1450
                                                      04 003D5         RET                                                 ; 1451

; Routine Size:  982 bytes,    Routine Base:  _PAT$CODE + 0000


;  485          1452  1
;  487        1453  1 %SBTTL  'build_ihd -- Build a phony image header for the input file'
;  488        1454  1 ROUTINE build_ihd (header_addr) : NOVALUE =
;  489        1455  1 !++
;  490        1456  1 !
;  491        1457  1 ! Functional Description:
;  492        1458  1 !
;  493        1459  1 !       This routine will build a phony image header for the input file
;  494        1460  1 !       being patched.  Thus allowing PATCH to map the input file as if
;  495        1461  1 !       it were an image.  The side effect of this will be that almost
;  496        1462  1 !       all PATCH commands will function as usual and the entry and
;  497        1463  1 !       display modes will operate normally.
;  498        1464  1 !
;  499        1465  1 !       We compute the number of ISDs required to map the input file and
;  500        1466  1 !       build the ISDs pointing to the various sections of the file.
;  501        1467  1 !       This is done by calling $GETJPI to determine how many PTEs are
;  502        1468  1 !       available for mapping the input file, adjusting by a fudge factor
;  503        1469  1 !       (the ISE/ISDs take up VM too), and finally arriving at our result
;  504        1470  1 !       by dividing the file size by the number of available PTEs.
;  505        1471  1 !
;  506        1472  1 ! Inputs:
;  507        1473  1 !
;  508        1474  1 !       header_addr     addr.rl The address of the buffer to write the
;  509        1475  1 !                               phony 'image' header.
;  510        1476  1 !
;  511        1477  1 ! Implicit Inputs:
;  512        1478  1 !
;  513        1479  1 !       pat$gl_iselhd   addr.ml The address of the image section entry
;  514        1480  1 !       pat$gl_isetail  addr.ml list head and tail (both 0 on entry!).
;  515        1481  1 !       pat$gl_oldfab   addr.rl The address of the input files FAB.
;  516        1482  1 !
;  517        1483  1 !       The image header offsets and associted 'default' values.
;  518        1484  1 !       The fill character used to pad out the remainder of the image
;  519        1485  1 !       header.
;  520        1486  1 !
;  521        1487  1 ! Outputs:
;  522        1488  1 !
;  523        1489  1 !       The header will be written into the output buffer.
;  524        1490  1 !       The ISDs have been created and written following the header.
;  525        1491  1 !
;  526        1492  1 ! Implicit Outputs:
;  527        1493  1 !
;  528        1494  1 !       pat$gl_iselhd   addr.ml The addresses of the first and last
;  529        1495  1 !       pat$gl_isetail  addr.ml entries in the image section list.
;  530        1496  1 !
;  531        1497  1 !       The fields in the phony image header will be adjusted as we
;  532        1498  1 !       create the necessary mapping information in the ISE list.
;  533        1499  1 !
;  534        1500  1 ! Routine Value:
;  535        1501  1 !
;  536        1502  1 !       None, yet.
;  537        1503  1 !
;  538        1504  1 ! Side Effects:
;  539        1505  1 !
;  540        1506  1 !       None, yet.
;  541        1507  1 !
;  542        1508  1 !--
;  543        1509  2 BEGIN
;  544          1510  2
;  545          1511  2 BIND
;  546          1512  2     block_count = pat$gl_oldfab [fab$l_alq];               ! Number of blocks in the input file.
;  547          1513  2
;  548          1514  2 LITERAL
;  549          1515  2     false = 0, true = 1,                                    ! Boolean operands.
;  550          1516  2     fill = %X'FF';                                          ! Fill value for the remainder of the header block.
;  551          1517  2
;  552          1518  2 LOCAL
;  553          1519  2     current_ise : REF $bblock,                              ! Pointer to current ISE/ISD block.
;  554          1520  2     current_isd : REF $bblock,                              ! The address of the ISD we are currently working on
;  555          1521  2     freptecnt : INITIAL (0),                                ! Number of PTEs available for mapping VM in this pr
;  556          1522  2     page_count,                                             ! Number of pages mapped by each ISD.
;  557          1523  2     status,                                                 ! Local status scalar.
;  558          1524  2     jpilist :     $bblock [12] INITIAL (                    ! The item list for the $GETJPI system service.
;  559          1525  2                   WORD (4, jpi$_freptecnt),                 ! Buffer size and item code (free pte count)
;  560          1526  2                   LONG (freptecnt, 0));                     ! The buffer and return addresses.
;  561          1527  2
;  562          1528  2 MAP
;  563          1529  2     header_addr : REF $bblock;
;  564          1530  2
;  565          1531  3 IF NOT (status = $GETJPI (ITMLST = jpilist))             ! Get the number of free PTEs for mapping the input
;  566          1532  2 THEN    SIGNAL (pat$_syserror, 0, .status);                ! Signal system service errors.
;  567          1533  2
;  568          1534  2 freptecnt = .freptecnt / 2;                                 ! Reduce available page count by 50%.
;  569          1535  2 page_count = MINU (.block_count, .freptecnt);              ! Determine the number of pages mapped by each ISD.
;  570          1536  2
;  571          1537  2 CH$FILL (fill, a_page, .header_addr);                      ! Initialize the contents of the header.
;  572          1538  2 header_addr [ihd$w_size] =      a_page;                    ! Size of 'image' header in bytes.
;  573          1539  2 header_addr [ihd$w_activoff] =  0;                         ! Offset to the 'image' activation data.
;  574          1540  2 header_addr [ihd$w_symdbgoff] = 0;                         ! Offset to the debug symbol table data.
;  575          1541  2 header_addr [ihd$w_imgidoff] =  0;                         ! Offset to the ident data.
;  576          1542  2 header_addr [ihd$w_patchoff] =  0;                         ! Offset to the patch data.
;  577          1543  2 header_addr [ihd$w_majorid] =   ihd$k_majorid;             ! Major identification.
;  578          1544  2 header_addr [ihd$w_minorid] =   ihd$k_minorid;             ! Minor identification.
;  579          1545  2 header_addr [ihd$b_hdrblkcnt] = 1;                         ! Number of blocks making up the 'image' header.
;  580          1546  2 header_addr [ihd$b_imgtype] =   ihd$k_exe;                 ! Image type.
;  581          1547  2 header_addr [ihd$w_iochancnt] = 0;                         ! # of requested IO channels (0 is default).
;  582          1548  2 header_addr [ihd$w_imgiocnt] =  0;                         ! # of pages of image IO section requested (0 is def
;  583          1549  2 header_addr [ihd$l_lnkflags] =  0;                         ! Linker produced image flags (defaulted).
;  584          1550  2 header_addr [ihd$l_ident] =     0;                         ! Global section ident for linkable images.
;  585          1551  2 header_addr [ihd$l_sysver] =    0;                         ! System Version (0 default NOT linked with exec).
;  586          1552  2 header_addr [ihd$l_iafva] =     0;                         ! Relative virtual address of image activator fixup
;  587          1553  2
;  588          1554  2 !+
;  589          1555  2 ! We will always need at least one ISE/ISD.  It is created here to initialize the ISE list
;  590          1556  2 ! thus allowing routine pat$build_ise to perform the routine task of creating normal image
;  591          1557  2 ! section descriptors.  It will be called iteratively below to create enough ISDs to map
;  592          1558  2 ! the input file.
;  593          1559  2 !-
;  594          1560  2 pat$alloblk (ise$c_size+isd$k_lenpriv, current_ise);      ! Allocate a block of storage for the ISE/ISD.
;  595          1561  2 current_ise [ise$l_nxtise] =    0;                         ! Address of the next ISE list entry.
;  596          1562  2 current_ise [ise$l_imgvst] =    0;                         ! Starting virtual address of the section.
;  597          1563  2 current_ise [ise$l_imgvend] =   (.page_count*a_page)-1;    ! Ending virtual address of the section.
;  598          1564  2 current_ise [ise$l_mapvst] =    0;                         ! Mapped starting address of this section.
;  599          1565  2 current_ise [ise$l_mapvend] =   0;                         ! Mapped ending address of this section.
;  600          1566  2 current_isd = .current_ise + ise$c_size;                   ! Compute starting address of the ISD for this ISE.
;  601          1567  2 current_isd [isd$w_size] =        isd$k_lenpriv;                 ! Size of the ISD in bytes for a GLOBAL ISD.
;  602          1568  2 current_isd [isd$w_pagcnt] =      .page_count;                   ! # pages described by this ISD.
;  603          1569  2 current_isd [isd$l_vpnpfc] =      0;                             ! VPN and PFC fields.
;  604          1570  2 current_isd [isd$l_flags] =       0;                             ! Flags and ISD Type.
;  605          1571  2 current_isd [isd$v_crf] =         true;                          ! Copy on Reference.
;  606          1572  2 current_isd [isd$v_wrt] =         true;                          ! Writable section..
;  607          1573  2 current_isd [isd$v_matchctl] =   isd$k_matnev;                  ! Match control.
;  608          1574  2 current_isd [isd$b_type] =        isd$k_normal;                  ! Normal image section.
;  609          1575  2 current_isd [isd$l_vbn] =         1;                             ! Base virtual block number.
;  610          1576  2
;  611          1577  2 IF .pat$gl_iselhd EQL 0                                          ! If this is the first entry in the list, make
;  612          1578  2 THEN    pat$gl_iselhd = pat$gl_isetail = .current_ise;           ! it appear at the head and tail of the list.
;  613          1579  2
;  614          1580  2 !+
;  615          1581  2 ! Now iteratively create enough ISE/ISDs to map the entire input file.
;  616          1582  2 !-
;  617          1583  2 INCR current_vpn FROM .page_count TO .block_count - 1 BY .page_count
;  618          1584  3 DO  BEGIN
;  619          1585  3     pat$build_ise (current_ise, .current_vpn, .current_vpn + 1, .page_count);
;  620          1586  3     current_ise [ise$l_imgvst] = .current_vpn * a_page;                      ! Set the starting and ending virtua
;  621          1587  3     current_ise [ise$l_imgvend] = .current_ise [ise$l_imgvst] + (.page_count * a_page) - 1;     ! for the se
;  622          1588  3     pat$gl_newvpnmx = .current_vpn;                                          ! Update the max VPN processed.
;  623          1589  3     pat$gl_newvbnmx = .current_vpn + 1;                                      ! Likewise with the VBN.
;  624          1590  2     END;    ! of INCR
;  625          1591  2
;  626          1592  2 pat$gl_oldvbnmx = .pat$gl_newvbnmx;                                          ! Set the highest VBN for the old fi
;  627          1593  2
;  628          1594  1 END;    ! of ROUTINE build_ihd


                                                               .PSECT  _PAT$PLIT,NOWRT,NOEXE,0

                                  0415  0004  00040 P.AAF:     .WORD   4, 1045                                              ;
                        00000000  00000000  00044              .LONG   0, 0                                                 ;

                                                               .EXTRN  SYS$GETJPI

                                                               .PSECT  _PAT$CODE,NOWRT,2

                                             07FC 00000 BUILD_IHD:
                                                               .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10                   ; 1454
                       5A 00000000G   EF      9E 00002         MOVAB   PAT$GL_NEWVBNMX, R10                               ;
                       59 00000000G   EF      9E 00009         MOVAB   PAT$GL_ISELHD, R9                                  ;
                       58 00000000G   EF      9E 00010         MOVAB   BLOCK_COUNT, R8                                    ;
                       5E             10      C2 00017         SUBL2   #16, SP                                            ;
                                      7E      D4 0001A         CLRL    FREPTECNT                                          ; 1509
          08   AE 00000000'   EF      0C      28 0001C         MOVC3   #12, P.AAF, JPILIST                                ; 1526
                       0C     AE      6E      9E 00025         MOVAB   FREPTECNT, JPILIST+4                               ; 1509
                                      7E      7C 00029         CLRQ    -(SP)                                              ; 1531
                                      7E      D4 0002B         CLRL    -(SP)                                              ;
                              14      AE      9F 0002D         PUSHAB  JPILIST                                            ;
                                      7E      7C 00030         CLRQ    -(SP)                                              ;
                                      7E      D4 00032         CLRL    -(SP)                                              ;
                  00000000G   00      07      FB 00034         CALLS   #7, SYS$GETJPI                                     ;
                              11      50      E8 0003B         BLBS    STATUS, 1$                                         ;
                                      50      DD 0003E         PUSHL   STATUS                                             ; 1532
```

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                                                                 N 11
PATIHD                                                           16-Sep-1984 00:12:38   VAX-11 Bliss-32 V4.0-742                    Page  18
V04-000         build_ihd -- Build a phony image header for the 14-Sep-1984 12:52:33   DISK$VMSMASTER:[PATCH.SRC]PATIHD.B32;1        (4)

                                                     7E  D4 00040          CLRL    -(SP)                                       ;
                                         00000000G   8F  DD 00042          PUSHL   #PAT$_SYSERROR                              ;
                            00000000G  00            03  FB 00048          CALLS   #3, LIB$SIGNAL                              ;
                                       6E            02  C6 0004F 1$:      DIVL2   #2, FREPTECNT                               ; 1534
                                       50            68  D0 00052          MOVL    BLOCK_COUNT, R0                             ; 1535
                                       6E            50  D1 00055          CMPL    R0, FREPTECNT                               ;
                                                     03  1B 00058          BLEQU   2$                                          ;
                                       50            6E  D0 0005A          MOVL    FREPTECNT, R0                               ;
                                       56            50  D0 0005D 2$:      MOVL    R0, PAGE_COUNT                              ;
                                       57       04   AC  D0 00060          MOVL    HEADER_ADDR, R7                             ; 1537
    0200   8F       FF   8F            6E            00  2C 00064          MOVC5   #0, (SP), #255, #512, (R7)                  ;
                                                     67     0006C                                                              ;
                                       67     0200   8F  3C 0006D          MOVZWL  #512, (R7)                                  ; 1538
                                                04   A7  D4 00072          CLRL    4(R7)                                       ; 1540
                                                08   A7  B4 00075          CLRW    8(R7)                                       ; 1542
                                  0C   A7 35303230   8F  D0 00078          MOVL    #892351024, 12(R7)                          ; 1543
                                  10   A7     0101   8F  B0 00080          MOVW    #257, 16(R7)                                ; 1545
                                                1C   A7  7C 00086          CLRQ    28(R7)                                      ; 1547
                                                24   A7  7C 00089          CLRQ    36(R7)                                      ; 1550
                                                2C   A7  D4 0008C          CLRL    44(R7)                                      ; 1552
                                                04   AE  9F 0008F          PUSHAB  CURRENT_ISE                                 ; 1560
                                                     24  DD 00092          PUSHL   #36                                         ;
                            00000000G  EF            02  FB 00094          CALLS   #2, PAT$ALLOBLK                             ;
                                       51       04   AE  D0 0009B          MOVL    CURRENT_ISE, R1                             ; 1561
                                                     61  7C 0009F          CLRQ    (R1)                                        ;
                         54            56            09  78 000A1          ASHL    #9, PAGE_COUNT, R4                          ; 1563
                                  08   A1       FF   A4  9E 000A5          MOVAB   -1(R4), 8(R1)                               ;
                                                0C   A1  7C 000AA          CLRQ    12(R1)                                      ; 1564
                                       50       14   A1  9E 000AD          MOVAB   20(R1), CURRENT_ISD                         ; 1566
                                       60            10  B0 000B1          MOVW    #16, (CURRENT_ISD)                          ; 1567
                                  02   A0            56  B0 000B4          MOVW    PAGE_COUNT, 2(CURRENT_ISD)                  ; 1568
                                                04   A0  7C 000B8          CLRQ    4(CURRENT_ISD)                              ; 1569
                                  08   A0            0A  88 000BB          BISB2   #10, 8(CURRENT_ISD)                         ; 1572
      08   A0            03            04            03  F0 000BF          INSV    #3, #4, #3, 8(CURRENT_ISD)                  ; 1573
                                                0B   A0  94 000C5          CLRB    11(CURRENT_ISD)                             ; 1574
                                  0C   A0            01  D0 000C8          MOVL    #1, 12(CURRENT_ISD)                         ; 1575
                                                     69  D5 000CC          TSTL    PAT$GL_ISELHD                               ; 1577
                                                     0A  12 000CE          BNEQ    3$                                          ;
                            00000000G  EF            51  D0 000D0          MOVL    R1, PAT$GL_ISETAIL                          ; 1578
                                       69            51  D0 000D7          MOVL    R1, PAT$GL_ISELHD                           ;
                         53            68            01  C3 000DA 3$:      SUBL3   #1, BLOCK_COUNT, R3                         ; 1583
                                       52            56  D0 000DE          MOVL    PAGE_COUNT, CURRENT_VPN                     ;
                                                     32  11 000E1          BRB     5$                                          ;
                                                     56  DD 000E3 4$:      PUSHL   PAGE_COUNT                                  ; 1585
                                                01   A2  9F 000E5          PUSHAB  1(CURRENT_VPN)                              ;
                                                     52  DD 000E8          PUSHL   CURRENT_VPN                                 ;
                                                10   AE  9F 000EA          PUSHAB  CURRENT_ISE                                 ;
                            00000000G  EF            04  FB 000ED          CALLS   #4, PAT$BUILD_ISE                           ;
                                       50       04   AE  D0 000F4          MOVL    CURRENT_ISE, R0                             ; 1586
                    04   A0            52            09  78 000F8          ASHL    #9, CURRENT_VPN, 4(R0)                      ;
                         51            54       04   A0  C1 000FD          ADDL3   4(R0), R4, R1                               ; 1587
                                  08   A0       FF   A1  9E 00102          MOVAB   -1(R1), 8(R0)                               ;
                            00000000G  EF            52  D0 00107          MOVL    CURRENT_VPN, PAT$GL_NEWVPNMX                ; 1588
                                       6A       01   A2  9E 0010E          MOVAB   1(CURRENT_VPN), PAT$GL_NEWVBNMX             ; 1589
                                       52            56  C0 00112          ADDL2   PAGE_COUNT, CURRENT_VPN                     ; 1583
                                       53            52  D1 00115 5$:      CMPL    CURRENT_VPN, R3                             ;
                                                     C9  15 00118          BLEQ    4$                                          ;
```

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                        00000000G  EF            6A  D0 0011A        MOVL    PAT$GL_NEWVBNMX, PAT$GL_OLDVBNMX                        ; 1592
                                                     04 00121        RET                                                             ; 1594

; Routine Size:  290 bytes,    Routine Base:  _PAT$CODE + 03D6

;  629          1595  1
;  631      1596  1 %SBTTL  'PAT$CREMAP -- MAP SECTIONS'
;  632      1597  1 GLOBAL ROUTINE PAT$CREMAP(ISEADR) :NOVALUE =                        ! CREATES AND MAPS AN IMAGE SECTION
;  633      1598  1
;  634      1599  1 !++
;  635      1600  1 ! FUNCTIONAL DESCRIPTION:
;  636      1601  1 !
;  637      1602  1 !       THIS ROUTINE CREATES AND MAPS IMAGE SECTIONS.  ALL SECTIONS
;  638      1603  1 !       ARE MAPPED WRITABLE.  GLOBAL SECTIONS WHICH MUST ALWAYS BE
;  639      1604  1 !       OBTAINED EXTERNALLY, WILL NOT BE MAPPED (AS PATCH HAS NO WAY TO
;  640      1605  1 !       OBTAIN THEM) AND INSTEAD, AN ERROR IS REPORTED.  IF THERE
;  641      1606  1 !       IS A LOCAL COPY OF THE GLOBAL SECTION, THEN THAT WILL BE PATCHED
;  642      1607  1 !       NO MATTER WHAT THE MATCH CONTROL FIELD CONTAINS.
;  643      1608  1 !
;  644      1609  1 !       THE IMAGE SECTION DESCRIBING THE STACK MAY NOT BE PATCHED.
;  645      1610  1 !
;  646      1611  1 !       THE IMAGE SECTION ENTRY IS UPDATED TO CONTAIN THE MAPPED VIRTUAL ADDRESSES.
;  647      1612  1 !
;  648      1613  1 !       THE SECTION IS MAPPED INTO THE FIRST AVAILABLE ADDRESSES IN P0 SPACE.
;  649      1614  1 !
;  650      1615  1 ! FORMAL PARAMETERS:
;  651      1616  1 !
;  652      1617  1 !       CURISE - ADDRESS OF IMAGE SECTION ENTRY TO BE MAPPED
;  653      1618  1 !
;  654      1619  1 ! IMPLICIT INPUTS:
;  655      1620  1 !
;  656      1621  1 !       THE OLD IMAGE FILE HAS BEEN SET UP FOR INPUT.
;  657      1622  1 !
;  658      1623  1 ! IMPLICIT OUTPUTS:
;  659      1624  1 !
;  660      1625  1 !       THE IMAGE SECTION IS MAPPED AND THE IMAGE SECTION ENTRY UPDATED.
;  661      1626  1 !
;  662      1627  1 ! ROUTINE VALUE:
;  663      1628  1 !
;  664      1629  1 ! COMPLETION CODES:
;  665      1630  1 !
;  666      1631  1 !       NONE
;  667      1632  1 !
;  668      1633  1 ! SIDE EFFECTS:
;  669      1634  1 !
;  670      1635  1 !       ERROR MESSAGE IS REPORTED IF UNABLE TO MAP OR MAP FAILS.
;  671      1636  1 !       IMAGE SECTION IS MAPPED.
;  672      1637  1 !
;  673      1638  1 !--
;  674      1639  1
;  675      1640  2 BEGIN
;  676      1641  2
;  677      1642  2 LOCAL
;  678      1643  2       IMG_FIL_DESC: VECTOR[2,LONG],                               ! TEMPORARY IMAGE FILE NAME DESCRIPTOR
;  679      1644  2       CURISD: REF BLOCK[,BYTE];                                   ! CONTAINS ADDRESS OF ISD PART OF ISE
;  680      1645  2 MAP
;  681      1646  2       ISEADR: REF BLOCK[,BYTE];                                   ! CONTAINS ADDRESS OF IMAGE SECTION ENTRY
;  682      1647  2
;  683      1648  2 !++
;  684      1649  2 ! SET UP THE VIRTUAL PAGES TO MAP IMAGE SECTION TO.
;  685      1650  2 !--
;  686      1651  2 CURISD=.ISEADR + ISE$C_SIZE;                                      ! SET ADDRESS OF ISD PART OF ISE
;  687      1652  2 PAT$GL_ISVADDR[START_OFF]= 200;                                   ! START MAPPING AT FISRT AVAILABLE ADDRESS I
;  688        1653  2 PAT$GL_ISVADDR[END_OFF]= 200;                                   ! MAP AS MUCH AS NEEDED (.CURISD[ISD$W_PAGCN
;  689        1654  2
;  690        1655  2 IMG_FIL_DESC[0]=.PAT$GL_OLDNBK[NAM$B_RSL];                      ! SET LENGTH OF NAME
;  691        1656  2 IMG_FIL_DESC[1]=PAT$GB_OLDNAME;                                  ! SET ADDRESS OF NAME
;  692        1657  2
;  693        1658  2 !++
;  694        1659  2 ! CHECK FOR STACK IMAGE SECTION DESCRIPTOR.
;  695        1660  2 !--
;  696        1661  2 IF .CURISD[ISD$B_TYPE] EQL ISD$K_USRSTACK
;  697        1662  2 THEN
;  698        1663  2         SIGNAL(PAT$_NOACCESS);                                   ! REPORT ERROR
;  699        1664  2
;  700        1665  2 !++
;  701        1666  2 ! CHECK FOR DEMAND ZERO IMAGE SECTIONS.
;  702        1667  2 !--
;  703        1668  2 IF .CURISD[ISD$V_DZRO]
;  704        1669  2 THEN
;  705        1670  3         BEGIN
;  706        1671  3 !       PAT$GL_ERRCODE=$CRMPSC(    INADR=PAT$GL_ISVADDR             ! CREATE AND MAP IMAGE SECTION
;  707        1672  3 !                               , RETADR=ISEADR[ISE$L_MAPVST]    ! RETURNED MAP START AND END ADDRESSES
;  708        1673  3 !                               , FLAGS=(SEC$M_DZRO OR SEC$M_WRT OR SEC$M_CRF OR SEC$M_EXPREG) ! READ/WRITE
;  709        1674  3 !                               , CHAN=.PAT$GL_OLDFAB[FAB$L_STV] ! CHANNEL NUMBER
;  710        1675  3 !                               , PAGCNT=.CURISD[ISD$W_PAGCNT]); ! NUMBER OF PAGES TO MAP
;  711        1676  3         PAT$GL_ERRCODE=LIB$_CREMAPSEC(  PAT$GL_ISVADDR
;  712        1677  3                                         , ISEADR[ISE$L_MAPVST]
;  713        1678  4                                         , (SEC$M_DZRO OR SEC$M_WRT OR SEC$M_CRF OR SEC$M_EXPREG)
;  714        1679  3                                         , 0
;  715        1680  3                                         , 0
;  716        1681  3                                         , IMG_FIL_DESC
;  717        1682  3                                         , .CURISD[ISD$W_PAGCNT]
;  718        1683  3                                         , 0);
;  719        1684  3         IF NOT .PAT$GL_ERRCODE
;  720        1685  3         THEN
;  721        1686  3                 SIGNAL(PAT$_SYSERROR,0,.PAT$GL_ERRCODE);                 ! REPORT ERROR
;  722        1687  3         END
;  723        1688  3
;  724        1689  3 !++
;  725        1690  3 ! IF NOT DEMAND ZERO, THEN CHECK FOR A GLOBAL SECTION THAT HAS NO LOCAL COPY.
;  726        1691  3 !--
;  727        1692  2 ELSE
;  728        1693  3         BEGIN
;  729        1694  3         IF .CURISD[ISD$V_GBL]                                    ! IF IT IS GLOBAL
;  730        1695  3         THEN
;  731        1696  4                 IF (.CURISD[ISD$L_VBN] EQL 0)                    ! AND DOES NOT HAVE A LOCAL COPY
;  732        1697  3                 THEN
;  733        1698  3                         SIGNAL(PAT$_GBLONLY,1,CURISD[ISD$T_GBLNAM]); ! THEN REPORT ERROR AND UNWIND/EXIT
;  734        1699  3 !       PAT$GL_ERRCODE=$CRMPSC(    INADR=PAT$GL_ISVADDR             ! CREATE AND MAP IMAGE SECTION
;  735        1700  3 !                               , RETADR=ISEADR[ISE$L_MAPVST]    ! RETURNED MAP STAR AND END ADDRESSES
;  736        1701  3 !                               , VBN=.CURISD[ISD$L_VBN]         ! BLOCK ADDRESS OF FIRST BLOCK TO MAP
;  737        1702  3 !                               , FLAGS=(SEC$M_WRT OR SEC$M_CRF OR SEC$M_EXPREG)          ! READ/WRITE
;  738        1703  3 !                               , CHAN=.PAT$GL_OLDFAB[FAB$L_STV] ! CHANNEL NUMBER
;  739        1704  3 !                               , PAGCNT=.CURISD[ISD$W_PAGCNT]); ! NUMBER OF PAGES TO MAP
;  740        1705  3
;  741        1706  3         PAT$GL_ERRCODE=LIB$_CREMAPSEC(  PAT$GL_ISVADDR,
;  742        1707  3                                       ISEADR[ISE$L_MAPVST],
;  743        1708  3                                       IF .PAT$GL_FLAGS [PAT$S_ABSOLUTE] AND NOT .PAT$GL_FLAGS [PAT$S_NEW_VERSION]
;  744        1709  4                                        THEN (SEC$M_WRT OR SEC$M_EXPREG)
;  745       1710  3                               ELSE (SEC$M_WRT OR SEC$M_CRF OR SEC$M_EXPREG),
;  746       1711  3                              0,
;  747       1712  3                              0,
;  748       1713  3                              IMG_FIL_DESC,
;  749       1714  3                              .CURISD[ISD$W_PAGCNT],
;  750       1715  3                              .CURISD[ISD$L_VBN],
;  751       1716  3                              0,
;  752       1717  3                              IF .PAT$GL_FLAGS [PAT$S_ABSOLUTE] AND NOT .PAT$GL_FLAGS [PAT$S_NEW_VERSION]
;  753       1718  3                               THEN  PAT$GL_CHANUM);
;  754       1719  3
;  755       1720  3
;  756       1721  3           IF NOT .PAT$GL_ERRCODE
;  757       1722  3           THEN
;  758       1723  3                   SIGNAL(PAT$_SYSERROR,0,.PAT$GL_ERRCODE);         ! REPORT ERROR
;  759       1724  3           RETURN                                                   ! RETURN ALWAYS SUCCESSFULLY
;  760       1725  2           END;
;  761       1726  2
;  762       1727  2 !++
;  763       1728  2 ! UPDATE THE LAST MAPPED ADDRESSES IN P0.
;  764       1729  2 !--
;  765       1730  2           PAT$GL_ISVADDR [START_OFF] = .ISEADR [ISE$L_MAPVST];
;  766       1731  2           PAT$GL_ISVADDR [END_OFF] = .ISEADR [ISE$L_MAPVEND];
;  767       1732  2
;  768       1733  1 END;                                                                 ! END OF PATMAP
; INFO#212             L1:1717
; Null expression appears in value-required context



                                03FC 00000        .ENTRY  PAT$CREMAP, Save R2,R3,R4,R5,R6,R7,R8,R9      ; 1597
               59 00000000G  8F   D0 00002        MOVL    #PAT$_SYSERROR, R9                            ;
               58 00000000G  EF   9E 00009        MOVAB   LIB$_CREMAPSEC, R8                            ;
               57 00000000G  EF   9E 00010        MOVAB   PAT$GL_FLAGS, R7                              ;
               56 00000000G  00   9E 00017        MOVAB   LIB$SIGNAL, R6                                ;
               55 00000000G  EF   9E 0001E        MOVAB   PAT$GL_ISVADDR, R5                            ;
               54 00000000G  EF   9E 00025        MOVAB   PAT$GL_ERRCODE, R4                            ;
               5E            04   C2 0002C        SUBL2   #4, SP                                        ;
               53        04  AC   D0 0002F        MOVL    ISEADR, R3                                    ; 1651
               52        14  A3   9E 00033        MOVAB   20(R3), CURISD                                ;
               65        C8  8F   9A 00037        MOVZBL  #200, PAT$GL_ISVADDR                          ; 1652
          04   A5        C8  8F   9A 0003B        MOVZBL  #200, PAT$GL_ISVADDR+4                        ; 1653
               7E 00000000G  EF   9A 00040        MOVZBL  PAT$GL_OLDNBR+3, IMG_FIL_DESC                 ; 1655
          04   AE 00000000G  EF   9E 00047        MOVAB   PAT$GB_OLDNAME, IMG_FIL_DESC+4                ; 1656
          FD   8F        0B  A2   91 0004F        CMPB    11(CURISD), #253                              ; 1661
                             09   12 00054        BNEQ    1$                                            ;
                  006D80FA   8F   DD 00056        PUSHL   #7176442                                      ; 1663
               66            01   FB 0005C        CALLS   #1, LIB$SIGNAL                                ;
    2A    08   A2            02   E1 0005F  1$:   BBC     #2, 8(CURISD), 2$                             ; 1668
                             7E   D4 00064        CLRL    -(SP)                                         ; 1677
               7E        02  A2   3C 00066        MOVZWL  2(CURISD), -(SP)                              ; 1682
                         08  AE   9F 0006A        PUSHAB  IMG_FIL_DESC                                  ; 1677
                             7E   7C 0006D        CLRQ    -(SP)                                         ;
                  0002000E   8F   DD 0006F        PUSHL   #131086                                       ; 1678
                         0C  A3   9F 00075        PUSHAB  12(R3)                                        ; 1677
                             55   DD 00078        PUSHL   R5                                            ; 1676
```

```
                        68              08  FB 0007A         CALLS   #8, LIB$_CREMAPSEC                   ; 1677
                        64              50  D0 0007D         MOVL    R0, PAT$GL_ERRCODE                   ;
                        73              64  E8 00080         BLBS    PAT$GL_ERRCODE, 8$                   ; 1684
                                        64  DD 00083         PUSHL   PAT$GL_ERRCODE                       ; 1686
                                        7E  D4 00085         CLRL    -(SP)                                ;
                                        59  DD 00087         PUSHL   R9                                   ;
                        66              03  FB 00089         CALLS   #3, LIB$SIGNAL                       ;
                                        68  11 0008C         BRB     8$                                   ; 1668
                        13      08      A2  E9 0008E 2$:     BLBC    8(CURISD), 3$                        ; 1694
                                0C      A2  D5 00092         TSTL    12(CURISD)                           ; 1696
                                        0E  12 00095         BNEQ    3$                                   ;
                                14      A2  9F 00097         PUSHAB  20(CURISD)                           ; 1698
                                        01  DD 0009A         PUSHL   #1                                   ;
                          006D8068      8F  DD 0009C         PUSHL   #7176296                             ;
                        66              03  FB 000A2         CALLS   #3, LIB$SIGNAL                       ;
        0F              67              06  E1 000A5 3$:     BBC     #6, PAT$GL_FLAGS, 4$                 ; 1717
                                        67  95 000A9         TSTB    PAT$GL_FLAGS                         ;
                                        0B  19 000AB         BLSS    4$                                   ;
                     50 00000000G       EF  9E 000AD         MOVAB   PAT$GL_CHANUM, R0                    ;
                                        50  DD 000B4         PUSHL   R0                                   ;
                                        02  11 000B6         BRB     5$                                   ;
                                        7E  D4 000B8 4$:     CLRL    -(SP)                                ;
                                        7E  D4 000BA 5$:     CLRL    -(SP)                                ; 1707
                                0C      A2  DD 000BC         PUSHL   12(CURISD)                           ; 1715
                        7E      02      A2  3C 000BF         MOVZWL  2(CURISD), -(SP)                     ; 1714
                                10      AE  9F 000C3         PUSHAB  IMG_FIL_DESC                         ; 1707
                                        7E  7C 000C6         CLRQ    -(SP)                                ;
        0C              67              06  E1 000C8         BBC     #6, PAT$GL_FLAGS, 6$                 ; 1708
                                        67  95 000CC         TSTB    PAT$GL_FLAGS                         ;
                                        08  19 000CE         BLSS    6$                                   ;
                          00020008      8F  DD 000D0         PUSHL   #131080                              ; 1709
                                        06  11 000D6         BRB     7$                                   ;
                          0002000A      8F  DD 000D8 6$:     PUSHL   #131082                              ; 1710
                                0C      A3  9F 000DE 7$:     PUSHAB  12(R3)                               ; 1707
                                        55  DD 000E1         PUSHL   R5                                   ; 1706
                        68              0A  FB 000E3         CALLS   #10, LIB$_CREMAPSEC                  ; 1707
                        64              50  D0 000E6         MOVL    R0, PAT$GL_ERRCODE                   ;
                        0E              64  E8 000E9         BLBS    PAT$GL_ERRCODE, 9$                   ; 1721
                                        64  DD 000EC         PUSHL   PAT$GL_ERRCODE                       ; 1723
                                        7E  D4 000EE         CLRL    -(SP)                                ;
                                        59  DD 000F0         PUSHL   R9                                   ;
                        66              03  FB 000F2         CALLS   #3, LIB$SIGNAL                       ;
                                        04     000F5         RET                                          ; 1693
                        65      0C      A3  7D 000F6 8$:     MOVQ    12(R3), PAT$GL_ISVADDR               ; 1730
                                        04     000FA 9$:     RET                                          ; 1733

; Routine Size:  251 bytes,    Routine Base:  _PAT$CODE + 04F8
;  770          1734  1 END                                                   ! END OF MODULE
;  771          1735  0 ELUDOM




                                                                   .EXTRN  LIB$SIGNAL

;                                  PSECT SUMMARY
;
;       Name                   Bytes                     Attributes
;
;   _PAT$OWN                        520  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;   _PAT$PLIT                        76  NOVEC,NOWRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(0)
;   _PAT$CODE                      1523  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;   .  ABS  .                         0  NOVEC,NOWRT,NORD ,NOEXE,NOSHR,  LCL,  ABS,  CON,NOPIC,ALIGN(0)




;                             Library Statistics
;
;                                           -------- Symbols --------       Pages      Processing
;       File                                Total     Loaded   Percent      Mapped     Time
;
;   _$255$DUA28:[SYSLIB]LIB.L32;1           18619        63          0      1000         00:01.9



; Information:   1
; Warnings:      0
; Errors:        0



;                                  COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/VARIANT:1/LIS=LIS$:PATIHD/OBJ=OBJ$:PATIHD MSRC$:PATIHD/UPDATE=(ENH$:PATIHD)

; Size:          1523 code + 596 data bytes
; Run Time:         00:35.6
; Elapsed Time:     01:40.3
; Lines/CPU Min:    2925
; Lexemes/CPU-Min: 33254
; Memory Used:  298 pages
; Compilation Complete
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0301 AH-BT13A-SE
VAX/VMS V4.0

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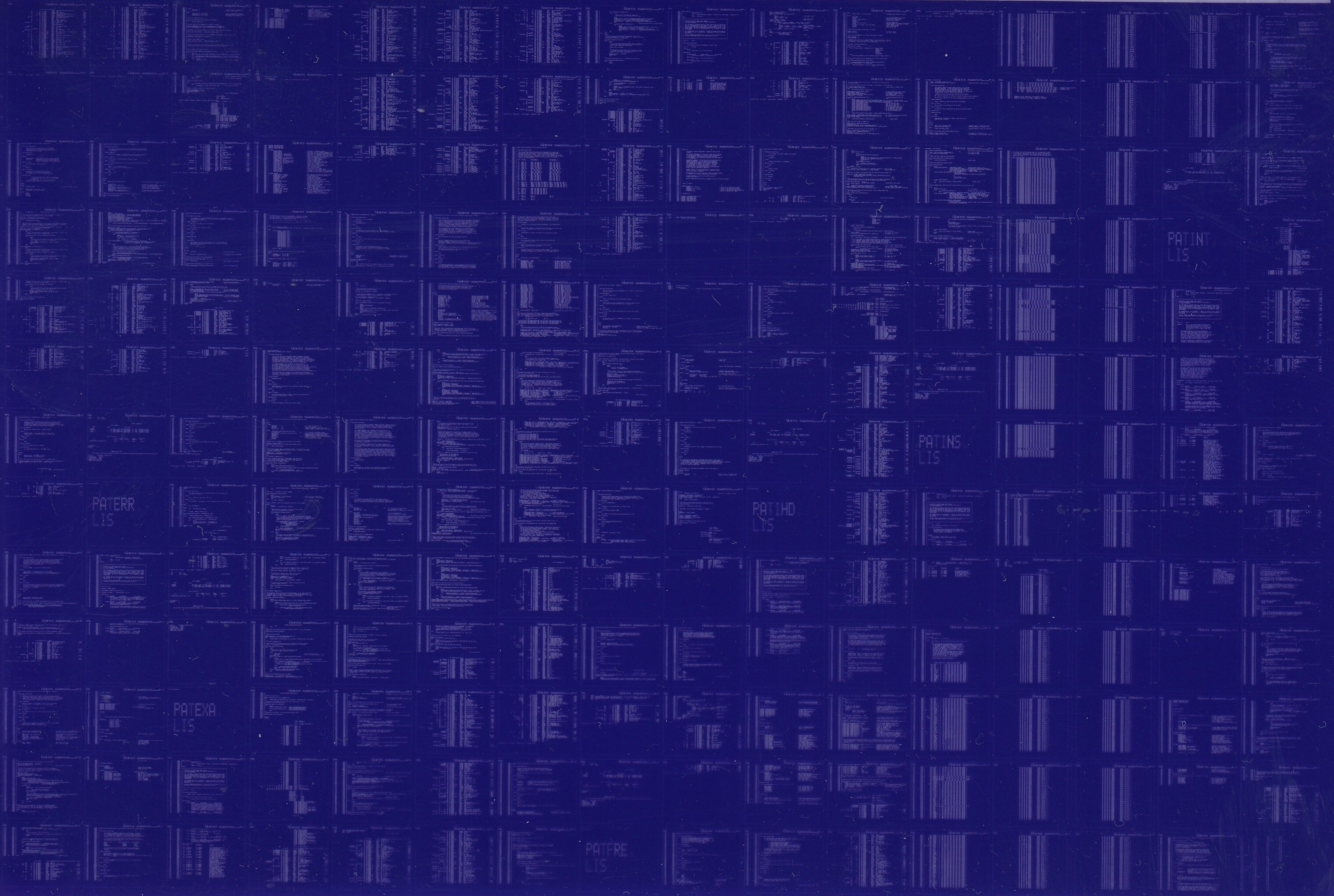

PATINT
LIS

PATINS
LIS

PATERR
LIS

PATIHD
LIS

PATEXA
LIS

PATFRE
LIS